

**What is claimed is:**

- 1                   1.     A traveling wave tube circuit assembly comprising a  
2 traveling wave tube:  
3                   a predistortion network RF coupled to the traveling wave tube  
4 and disposed in the traveling wave tube;  
5                   an amplifier;  
6                   a connecting cable coupling the amplifier to the predistortion  
7 network.
- 1                   2.     An assembly as recited in claim 1, wherein said amplifier  
2 is disposed in a low temperature zone.
- 1                   3.     An assembly as recited in claim 1, wherein said  
2 predistortion network is disposed in a high temperature zone.
- 1                   4.     An assembly as recited in claim 1, wherein said  
2 predistortion network comprises a limiter.
- 1                   5.     An assembly as recited in claim 1, wherein said  
2 predistortion network has a range between 11 to -3dBm.
- 1                   6.     An assembly as recited in claim 1, wherein said  
2 predistortion network comprises:  
3                   a first limiter;  
4                   a first attenuator coupled in series with said first limiter; and  
5                   a phase shifter coupled in series with said first attenuator.
- 1                   7.     An assembly as recited in claim 6, wherein said  
2 predistortion network further comprises a second attenuator coupled in said  
3 series with said phase shifter.

1                   8.    An assembly as recited in claim 6, wherein said  
2    predistortion network further comprises a transmission line coupled parallel to  
3    said limiter, said first attenuator and said phase shifter.

1                   9.    An assembly as recited in claim 8, wherein said  
2    transmission line has a third attenuator.

1                   10.   An assembly as recited in claim 9, wherein said  
2    predistortion network further comprises a second limiter coupled in series with  
3    said third attenuator.

1                   11.   An assembly as recited in claim 1, further comprising a  
2    second amplifier coupled in series with said first amplifier.

1                   12.   A traveling wave tube circuit assembly comprising:  
2                   a high temperature zone having a predistortion network; and  
3                   a traveling wave tube coupled in series with the predistortion  
4    network;  
5                   a low temperature zone having an RF amplifier; and  
6                   an RF connecting cable coupling said low temperature zone and  
7    said high temperature zone.

1                   13.   An assembly as recited in claim 12, wherein said  
2    predistortion network comprises:  
3                   a first limiter;  
4                   a first attenuator coupled in series with said first limiter; and  
5                   a phase shifter coupled in series with said first attenuator.

1           14. An assembly as recited in claim 12, wherein said  
2 predistortion network further comprises a second attenuator coupled in said  
3 series with said phase shifter.

1           15. An assembly as recited in claim 12, wherein said  
2 predistortion network further comprises a transmission line coupled parallel to  
3 said limiter, said first attenuator and said phase shifter.

1           16. An assembly as recited in claim 12, wherein said  
2 transmission line has a third attenuator.

1           17. An assembly as recited in claim 12, wherein said  
2 predistortion network further comprises a second limiter coupled in series with  
3 said third attenuator.

1           18. An assembly as recited in claim 12 further comprising a  
2 second RF amplifier coupled in series with said first RF amplifier.

1           19. A satellite comprising:  
2 a high temperature zone having a predistortion network; and  
3 a traveling wave tube coupled in series with the predistortion  
4 network;  
5 a low temperature zone having an RF amplifier; and  
6 an RF connecting cable coupling said low temperature zone and  
7 said high temperature zone.